

ABSTRACT OF THE DISCLOSURE

A vertical cavity surface emitting laser having a GaAs/Al(Ga)As DBR mirror over an InP layer. A first GaAs layer is MOCVD grown on an InP layer at a growth temperature of between 400 and 450 °C. Then, a second GaAs layer is grown by MOCVD at a growth temperature of about 600 °C over the first GaAs layer. A GaAs/Al(Ga)As DBR mirror is then grown over the second GaAs layer. Beneficially, an insulating layer is disposed between the second GaAs layer and the GaAs/Al(Ga)As DBR mirror. The insulating layer includes an opening that exposes the second GaAs layer. Then, the GaAs/Al(Ga)As DBR mirror is grown by lateral epitaxial overgrowth. The lower DBR can be comprised of a material that provides an acceptable lattice match with InP layers. A tunnel junction can be formed over an InP active region.

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